

Notice of Allowability

Application No.

10/518,377

Examiner

William W. Moore

Applicant(s)

KANG ET AL.

Art Unit

1656

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the Election made 5 December 2007 and the interview conducted 5 March 2007.
2. ☒ The allowed claim(s) is/are 1-3 and 6-17.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date 20050802 & 20060120
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

In the specification:

Amend the paragraph spanning pages 13 and 14 of the specification thus:

The sequence of the *H. polymorpha* YPS1 gene (HpYPS1) (SEQ ID NO: 1) cloned according to the present invention was deposited in GenBank under Accession No. AF493990. Also, the HpYPS1 gene encoding *H. polymorpha* protease yapsin1 was deposited in an international depository authority, the Korean Collection for Type Cultures, 52, Oun-dong, Yusong-Ku, Taejon 305-333, Republic of Korea, (~~Korean Collection for Type Cultures~~) on the date of June 18, 2002 and assigned Accession No. KCTC 10285BP. Further, the *hpyps1* Δ mutant strain having the HpYPS1 gene destroyed in *H. polymorpha* was deposited in an international depository authority, the Korean Collection for Type Cultures, 52, Oun-dong, Yusong-Ku, Taejon 305-333, Republic of Korea, on the date of June 18, 2002 and assigned Accession No. KCTC 10281BP. In an embodiment, the recombinant *H. polymorpha* strain *hpyps1* Δ -pMOXhPTH expressing and secreting human parathyroid hormone was deposited in an international depository authority, the Korean Collection for Type Cultures, 52, Oun-dong, Yusong-Ku, Taejon 305-333, Republic of Korea, on the date of June 18, 2002 and assigned Accession No. KCTC 10282BP. In another embodiment, the recombinant *H. polymorpha* strain *hpyps1* Δ -pYHSA12 expressing and secreting human serum albumin was also deposited in an international depository authority, the Korean Collection for Type Cultures, 52, Oun-dong,

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Yusong-Ku, Taejon 305-333, Republic of Korea, on the date of June 18, 2002 and assigned Accession No. KCTC 10283BP. In addition, the recombinant *H. polymorpha* strain *hpyps1* Δ -pYHSA13-T2 expressing and secreting albumin-TIMP2 fusion protein was deposited in an international depository authority, the Korean Collection for Type Cultures, 52, Oun-dong, Yusong-Ku, Taejon 305-333, Republic of Korea, on the date of June 23, 2003 and assigned Accession No. KCTC 10485BP.

In the claims:

Cancel claims 4 and 5.

Amend claims 1-3, 6, and 8-17 thus:

1. (Amended) An isolated A nucleic acid molecule comprising the sequence set forth shown in SEQ ID NO:1 Fig. 1 .
2. (Amended) An isolated The nucleic acid molecule according to claim 1, which is the HpYPS1 gene encoding *Hansenula polymorpha* yapsin1 deposited under Accession No. KCTC 10285BP (~~Accession No. KCTC 10285BP~~).
3. (Amended) An isolated A polypeptide comprising the amino acid sequence set forth shown in SEQ ID NO:2 Fig. 1 which is a yapsin1 protease capable of cleaving a protein comprising a basic amino acid residue or paired, dibasic, amino acid residues.
6. (Amended) A *Hansenula polymorpha* mutant strain having yapsin1 yapsin activity reduced by a mutation or a deletion of the HpYPS1 gene according to claim 1 encoding ~~*Hansenula polymorpha* yapsin1~~.
8. (Amended) A recombinant *Hansenula polymorpha* strain that is capable of expressing a foreign protein which strain is prepared by transforming the *Hansenula polymorpha* yapsin1 deficient strain according to claim 6 with introducing a gene

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encoding the foreign protein to the ~~Hansenula polymorpha~~ mutant strain according to claim 6.

9. (Amended) The recombinant *Hansenula polymorpha* strain according to claim 8, which is hpyps1A-pMOXhPTH deposited under Accession No. KCTC 10282BP (~~KCTC 10282BP~~).
10. (Amended) The recombinant *Hansenula polymorpha* strain according to claim 8, which is hpyps1A-pYHSA12 deposited under Accession No. KCTC 10283BP (~~KCTC 10283BP~~).
11. (Amended) The recombinant *Hansenula polymorpha* strain according to claim 8, which is hpyps1A-pYHSA13-TIMP2 deposited under Accession No. KCTC 10485BP (~~KCTC 10485BP~~).
12. (Amended) A process for preparing and isolating a foreign protein comprising expressing the foreign protein using the *Hansenula polymorpha* yapsin1 deficient strain according to claim 8 as a host, culturing a cell of the strain under conditions suitable for the expression of the foreign protein, and isolating the foreign protein from the cultured *Hansenula polymorpha* yapsin1 deficient strain or the culture medium.
13. (Amended) The process according to claim 12, in which the foreign protein is a recombinant protein comprising containing a basic amino acid residue or consecutive dibasic amino acid residues residue which can be cleaved by the protease having the amino acid sequence set forth in SEQ ID NO:2 yapsin1.
14. (Amended) The process according to claim 13, in which the protein comprising containing a basic amino acid residue or paired, dibasic, amino acid residues is selected from the group consisting of residue-comprises human parathyroid hormone, human serum albumin, and an albumin fusion protein.

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15. (Amended) A process for preparing and isolating human parathyroid hormone a ~~foreign protein~~ comprising expressing human parathyroid hormone ~~the foreign protein~~ using the *Hansenula polymorpha* yapsin1 deficient strain according to claim 9 as a host.
16. (Amended) A process for preparing and isolating human serum albumin a ~~foreign protein~~ comprising expressing human serum albumin ~~the foreign protein~~ using the *Hansenula polymorpha* yapsin1 deficient strain according to claim 10 as a host.
17. (Amended) A process for preparing and isolating an albumin fusion protein a ~~foreign protein~~ comprising expressing the albumin fusion protein ~~foreign protein~~ using the *Hansenula polymorpha* yapsin1 deficient strain according to claim 11 as a host.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Sean Myers-Payne on 5 March 2007.

The following is an examiner's statement of reasons for allowance:

The subject matter of claims 1-3 and 6-17 allowed herewith is free of the prior art of record. Applicant's priority documents, particularly PCT Application PCT/KR02/01279, provide evidence in the form of Deposit Indications that biological materials identified in claims 2 and 9-11 as amended above were deposited with the KCTC, and identifies the dates of deposit of each sample and the address of the depository. Thus pages 13 and 14 of the specification are amended above to incorporate the address of the KCTC into the text of the specification and such incorporation is not new matter where it is required by 37 CFR 1.809 and demonstrated in the record. The written assurance of Applicant's counsel in accordance with 37 CFR §§ 1.805-1.807 filed on 2 March 2007 satisfies the requirement for enablement of the claimed inventions describing deposits of biological material. See MPEP §§ 2405-2411.05. The examiner's amendment makes claim 2 an independent claim, deletes the parenthetical statements at the close of claims 2 and 9-11 in favor of restating their descriptions in the texts of the claims as "deposited under

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KCTC Accession No.", cancels claim 4 made superfluous by the amendment of claim 3, cancels claim 5 describing non-elected subject matter, and amends claims 1, 6, 8, and 12-17 according to the disclosures at pages 9-13 and 17-27 of the specification wherein the amended claim 12 now explicitly includes the recovery of heterologous proteins secreted into the culture medium of a *Hansenula polymorpha* yapsin1 deficient strain transformed with a gene encoding a heterologous protein.

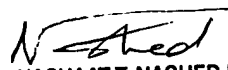
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William W. Moore whose telephone number is 571.272.0933 and whose FAX number is 571.273.0933. The examiner can normally be reached Monday through Friday between 9:00AM and 5:30PM EST. If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisory Primary Examiner, Dr. Kathleen Kerr Bragdon, can be reached at 571.272.0931. The official FAX number for all communications for the organization where this application or proceeding is assigned is 571.273.8300. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571.272.1600.

William W. Moore
5 March 2007


NASHAAT T. NASHED PHD.
PRIMARY EXAMINER